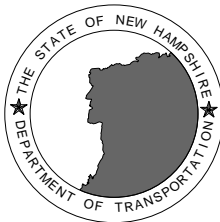


Interstate 93 Improvements Salem to Manchester IM-IR-93-1(174)0, 10418-C

Salem to Manchester,
New Hampshire

Prepared for **New Hampshire Department of Transportation and
Federal Highway Administration**



Prepared by **VHB/V**anasse Hangen Brustlin, Inc.
Bedford, NH

September, 2002

FHWA-NH-EIS-02-01-D

SALEM – MANCHESTER

IM – IR 93-1(174)0

10418-C

INTERSTATE 93 IMPROVEMENTS

HILLSBOROUGH AND ROCKINGHAM COUNTIES, NEW HAMPSHIRE

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

**Submittal Pursuant to 42 U.S.C. 4332 (2)© and
49 U.S.C. 303, 16 U.S.C 470 (f), 33 U.S.C. 1344**

by the

US Department of Transportation

Federal Highway Administration

And

New Hampshire Department of Transportation

Cooperating Agencies

**US Army Corps of Engineers
US Environmental Protection Agency**

**NH State Historic Preservation Office
NH Department of Environmental Services –
Wetlands Bureau**

9/13/02
Date of Approval

9/13/02
Date of Approval

[Signature]
For NH Department of Transportation

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For Federal Highway Administration

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The proposed project involves a 19.8-mile segment of Interstate 93 (I-93) from the Massachusetts/New Hampshire state line northward through the Towns of Salem, Windham, Derry, and Londonderry, and ending at the I-93/I-293 interchange in the City of Manchester. The purpose of the project is to increase transportation efficiency within the corridor by reducing congestion and enhancing safety. The Preferred Alternative involves widening I-93 from the existing limited access two-lane highway in each direction to a limited (fully controlled) access four-lane highway in each direction. Five existing interchanges and cross roads within the project corridor will be reconstructed. In addition, three new park and ride facilities will be constructed at Exits 2, 3, and 5, while bus service to Boston and northern Massachusetts will be expanded and enhanced. A bike path will be integrated into the highway widening and space will be reserved in the median to accommodate future commuter light rail trains. Impacts to the natural, cultural, and socio-economic environment were analyzed, including the secondary impacts associated with the project's growth-inducing effects. Mitigation is offered to offset or reduce unavoidable direct impacts associated with the project.

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Executive Summary

A. Project Description and Need

The New Hampshire Department of Transportation (NHDOT) and the Federal Highway Administration (FHWA) have prepared a Draft Environmental Impact Statement (DEIS) for proposed improvements to the Interstate Route 93 (I-93) corridor between Salem and Manchester, New Hampshire. The basic purpose of the I-93 Salem-Manchester project is to improve transportation efficiency and reduce safety problems associated with this approximately 19.8-mile segment of highway from the Massachusetts/New Hampshire state line to Manchester.

Interstate 93 is a north-south principal arterial Interstate highway within the State of New Hampshire and is part of the National System of Interstate and Defense Highways. I-93 in New Hampshire extends a distance of approximately 132 miles from the Massachusetts border at Salem, New Hampshire to the Vermont border at Littleton, New Hampshire. The segment of I-93 under study intersects a number of the important highway routes in southern New Hampshire. Due to population growth, development, and recreation opportunities in New Hampshire, the travel demands for I-93 between Salem and Manchester have exceeded the capacity of this existing four-lane facility for a number of years. Population and traffic projections for the next twenty years support the conclusion that the existing facility will be increasingly less able to function at the levels of service and safety for which it was originally designed. Decreases in the level of service are evident in reduced traveling speeds, increased density of traffic flow, as well as in the traffic backups at some interchanges during commuting hours.

During weekday peak hours, motorists traveling along the I-93 corridor currently experience traffic congestion and substantial delay. The congestion not only results in increased travel times, but also contributes to safety problems, as the limited spacing between vehicles does not afford the motorists sufficient movement to deal with frequent and abrupt lane change maneuvers and sudden stops. Without substantial improvements, or dramatically reduced demand, traffic operations along this section of I-93 are expected to continue to deteriorate under future conditions as traffic volumes increase.



Preferred Alternative

The NHDOT's Preferred Alternative involves a combination of transportation infrastructure improvements and strategies for the 19.8-mile study corridor. The main element of the improvement involves widening I-93 from the existing limited access two-lane highway in each direction to a limited access four-lane highway in each direction. The so-called Four-Lane Preferred Alternative (i.e., four lanes in both directions) begins in the Town of Salem, NH near the Massachusetts/New Hampshire State line and extends northerly through Salem, Windham, Derry and Londonderry, and into Manchester, ending at the I-93/I-293 interchange. In addition, the NHDOT has also selected the following design modifications and infrastructure improvements for the five interchanges and local roads within the project corridor:

- In the Exit 1-Interchange area, the existing Cross Street Bridge will be replaced with a new bridge located just to the north. The existing interchange at Exit 1 will be reconstructed to improve the substandard ramp geometry.
- At Exit 2, the existing interchange will be reconstructed to a diamond-type interchange configuration. Pelham Road will be widened and reconstructed from Policy Road to Stiles Road. Just north of Exit 2, the Brookdale Road bridge will be replaced on-line, utilizing a temporary bridge for maintenance of traffic during construction.
- In the Exit 3-Interchange area, both the northbound and southbound barrels of I-93 are proposed to be relocated (referred to as the Tight Shift Option) into the median area. The interchange ramps will be reconfigured with a diamond interchange design. NH 111 will be reconstructed and widened with the work beginning just west of the NH 111/NH 111A intersection. As NH 111 proceeds to the west, NH 111 is proposed to be relocated (off-line option) north of its existing location before tying into existing NH 111 near the NH 111/Wall Street intersection.
- In the Exit 4-Interchange area, I-93 will be widened to the east, retaining the existing layout for the southbound ramps. The existing diamond configuration of the northbound ramps will be reconstructed, providing longer ramps. NH 102 will be reconstructed and widened from Londonderry Road to the southbound ramps. The NH 102 bridge over I-93 will be replaced with a new bridge built directly south of the existing bridge. Just north of Exit 4 the Ash Street/Pillsbury Road bridge will be reconstructed on-line, utilizing a temporary bridge for maintenance of traffic during construction.
- At Exit 5, NH 28 will be widened and reconstructed on-line from Symmes Drive to Liberty Drive including the reconstruction of the Perkins Road and Symmes

Drive approaches, as well as the reconstruction of portions of both Liberty and Independence Drives. The existing diamond interchange will be reconstructed and brought up to current NHDOT standards.

In addition to the highway improvements, three new park and ride lots will be constructed with bus service facilities at Exits 2, 3 and 5. Early construction of these facilities and the implementation of additional bus services are proposed as practicable in advance of the highway widening to provide options for commuters seeking alternatives during construction. The current bus service to Boston will be expanded with service from the new park and ride facilities and the existing Exit 4 park and ride lot, and enhanced bus service will be implemented as practicable to employment centers in northern Massachusetts.

Intelligent Transportation System technologies and Incident Management strategies are an integral part of the overall transportation improvement strategy for the I-93 corridor. The Department proposes to implement measures such as variable message boards, highway advisory radio broadcasts, web site information, emergency reference markers, and coordination strategies among safety agencies before the highway widening. Additional measures will be added as part of the highway widening construction.

To further expand multimodal opportunities in the corridor, the Department proposes to carry forward those elements of a bike path along the I-93 corridor that are in keeping with objectives for north-south bike routes between Salem and Concord in the region served by I-93. The tentative layout along the I-93 right-of-way will interconnect the Park and Ride lots with the local intersecting roads and the State's regional bike network.

The Preferred Four-Lane Alternative will accommodate space for a potential future rail corridor between the MA/NH state line northerly to the Exit 5 Interchange. The potential light rail line within the highway corridor could be a link in a future rail system providing rail service between Lawrence, MA or Woburn, MA (and ultimately Boston, MA) to the south and the Manchester Airport and/or the City of Manchester, NH to the north. The NHDOT in concert with the Commonwealth of Massachusetts will be initiating a transit study from Boston, MA to Manchester, NH as a first step to planning long term rail and bus investments to service the region served by I-93.

The total estimated cost of the Preferred Alternative, including mitigation, is \$420.6 million.

B. Project History

The Interstate System in New Hampshire was built in the 1960's and early 1970's. The 19.8-mile section of I-93 between Salem and Manchester has not been

substantially reconstructed or widened since it was first constructed in the early 1960's.

The New Hampshire Legislature formally recognized the need to widen this section of I-93 and included the project in the first State Ten-Year Highway Plan, when that plan was enacted into legislation in 1986. In 1988, the NHDOT initiated the development of conceptual widening alternatives for the southerly section of the I-93 corridor in the Town of Salem. At that time, the idea was to systematically reconstruct and widen the 19.8-mile section of I-93 by proceeding from south to north over a period of years with completion by the year 2001–2002. As the process moved forward public meetings were held in 1989 in the Town of Salem for public comment on the preliminary improvement concepts. As the NHDOT proceeded, the environmental resource agencies registered their concerns relative to the NHDOT's segmented approach and strongly suggested that an in-depth corridor wide environmental study that considers all alternatives should be conducted to gain environmental approvals.

In 1991, the FHWA and NHDOT initiated preliminary designs and environmental analysis of alternatives and impacts within the framework of an Environmental Impact Statement (EIS).

As the EIS moved forward in 1992, questions were raised as to the NHDOT's methodology for projecting future traffic volumes on I-93 and how any proposed highway improvements to I-93 would interface with the rest of the intermodal transportation network in New Hampshire. In response, the NHDOT agreed in 1993 to develop a Statewide Transportation Model that would provide a more effective methodology for projecting future traffic volumes and for considering the interplay between highway improvements and traffic.

In 1999, with the development of the traffic model nearing completion, the Department restarted the EIS process by initiating preliminary engineering and environmental studies.

In 2000, the NH State Legislature via House Bill (HB) 1106 identified I-93 as a high priority project, because of the importance of this highway corridor to the region and the State. In addition, the tenets of environmental streamlining as outlined in the TEA-21 federal legislation were followed in an effort to streamline the environmental permitting process, so that improvements could be constructed and implemented as soon as possible.

As an outgrowth of the streamlining process and in conjunction with the public participation program, the Resource Agency meetings for this project, normally held at NHDOT headquarters in Concord, were held in the communities along the project corridor. Information related to the study was presented and distributed at these meetings. The meetings were open to the general public and public participation was encouraged through public notice. Additional meetings were also held with the Resource Agencies as part of the streamlining process. These meetings resulted in

additional studies or analysis, as appropriate, to address comments received from these agencies.

C. Alternatives Evaluated

Based on the analysis of a number of multimodal and highway improvement alternatives, the following seven alternatives or combinations thereof were selected as a “reasonable range of alternatives” for more detailed evaluation in this DEIS:

1. The No-Build Alternative, which essentially serves as the baseline condition for comparison with the Build Alternatives.
2. Transportation Systems Management (TSM) measures, specifically minor improvements such as ramp lengthening and lane widenings, that can be accomplished within the existing ROW at minimal expense. Such measures generally do not address the long-term project purpose and need, but will help to alleviate problems in the near term. Two other TSM measures, ramp metering and shoulder lane use, were determined to be impractical and were not proposed for further consideration.
3. Widening I-93 to 4-lanes in each direction for the entire length of the corridor including interchange improvements, in addition to constructing or expanding park and ride lots at Exits 2, 3, 4, and 5, and providing room and, as practical, constructing sub-grade for future rail transit service within the highway corridor. This is the Preferred Alternative.
4. Widening I-93 to 3-lanes in each direction for the entire length of the corridor including interchange improvements, in addition to the same park and ride lot construction and provision for future rail transit service as noted with the 4-lane widening alternative.
5. Widening I-93 to 4-lanes in each direction south of Exit 3 and 3-lanes in each direction north of Exit 3 including interchange improvements, along with the provisions proposed with either the 3 or 4-lane widening schemes. This is the so-called “Combination Alternative”.
6. Transportation Demand Management (TDM) measures, specifically Intelligent Transportation Systems (ITS) techniques as well as employer-based measures utilizing incentives and disincentives to encourage people to not drive alone. It was concluded that congestion pricing, another TDM measure, would be impracticable.
7. Improvements in bus service to include expanding existing service and providing an enhanced service to employment centers in northern Massachusetts. After ridership studies, it was concluded that neither rail service

nor HOV lanes would be effective alone or in combination with other mode options in satisfying the need for the project.

D. Summary of Beneficial and Adverse Impacts

Impacts of the Preferred Alternative including transportation improvements and costs are summarized in **Figure 2.7-23**. Relative to air quality, construction of the Preferred Alternative will not lead to any exceedance of state or federal Carbon Monoxide (CO) standards. From a mesoscale level, the project will be in compliance with both the 1990 Clean Air Act Amendment and the New Hampshire State Implementation Plan.

From a water quality standpoint, pollutant loading will increase slightly in four streams, but be lower or show no net increase in 17 of 21 streams crossed by the Preferred Alternative, because of the proposed stormwater-treatment measures. These measures include grassed swales and detention basins throughout the length of the project corridor. The Tight Shift Option at Exit 3 is expected to improve the quality of stormwater runoff eventually reaching Canobie Lake (Salem's municipal water supply). Water Quality will be improved by moving the highway away from Canobie Lake and by moving the northbound on and off-ramps out of the watershed. From a groundwater recharge standpoint, about 98 acres of stratified drift aquifer will be unavoidably covered with new, impervious roadway surface (including the Exit 5 park and ride lot). In addition, widening the highway will require that culverts be lengthened at many of the 21 stream crossings, resulting in some loss of aquatic habitat.

The Preferred Alternative including the bike path will impact an estimated 7 acre-feet of floodway and 46 acre-feet of 100-year floodplain. The largest impacts occur to the floodplains lying along Policy Brook, Porcupine Brook, Harris Brook, and Beaver Brook. Mitigation has included steepening of highway embankments and utilizing retaining walls where appropriate. Additional mitigation will include providing flood storage in the form of stormwater detention basins and newly created wetlands in locations adjacent to or upstream of flood-prone areas.

Because the majority of the highway widening and other improvements will take place within the existing right-of-way, only about 16 acres of important farmland soils will be converted under the Preferred Alternative. Approximately 40 percent of this conversion involves prime farmland soil, while the remainder is statewide or locally important farmland soils. About one acre of currently active farmland will be affected by the Preferred Alternative, primarily at Exit 1.

The Preferred Alternative will impact approximately 85 acres of wetlands of which approximately 9 acres are due to the construction of the bike path. The majority (66 percent) of this impact occurs to forested wetland, the most common type along the

highway corridor. In addition, four vernal pools, which function as essential breeding habitat for mole salamanders and wood frogs, will be impacted by the filling associated with the highway widening and construction of the bike path. The sum total of all habitat loss, i.e., both wetlands and uplands, is estimated to be about 290 acres with the Preferred Alternative, which includes the bike path and the three proposed park and ride lots. The proposed wetland mitigation package consisting of 22 acres of wetland creation and 639 acres of land preservation will offset this loss. Only one known location of a state-threatened or endangered plant species, the wild lupine (*Lupinus perennis*), will be affected. Attempts will be made to relocate colonies of this species as mitigation. Although the state threatened and endangered hognose snake (*Heterodon platyrhinos*) has been reported within the vicinity of the corridor, no known locations will be affected by the project. The US Fish and Wildlife Service has also requested that the possible presence in the project corridor of the New England cottontail (*Sylvilagus transitionalis*), a candidate species for federal protection, be studied.

The Preferred Alternative will result in elevated noise levels at certain receptor locations along the project corridor. In the year 2020, 51 more receptors will experience noise levels that approach or exceed the FHWA's Noise Abatement Criteria as compared to current conditions (i.e., 316 versus 265 receptors, mostly homes). Sound walls have been proposed to mitigate these sound impacts wherever practicable from a cost and effectiveness standpoint. Visual impacts of the Preferred Alternative will be largely limited to highway profile elevation changes, especially at Exit 3. The reduction of the median width and reduction of the natural vegetation buffer between the highway and adjacent development will also have some negative effect on aesthetics.

From a cultural resources standpoint, the Preferred Alternative affects 50 to 58 potentially sensitive archaeological sites. The presence or absence of archaeological resources at these sites will be confirmed in the field now that the Preferred Alternative has been identified. The Preferred Alternative will also affect six historic properties, which have been determined to be eligible for the National Register of Historic Places (i.e., Kinzler House, Robert Armstrong House, George Armstrong House, Robert J. Prowse Bridge, Reed Paige Clark Homestead, and Gearty House). There will be adverse effects to the Robert Armstrong House, George Armstrong House, Robert J. Prowse Bridge, and the Gearty House.

Widening and interchange improvements associated with the Preferred Alternative will require the acquisition of 13 residential and 11 business structures, while an additional 7 residential and 4 business structures will be acquired for the new park and ride lots. NHDOT conceptual relocation studies indicate that alternative housing and business sites are available for residential and business relocations. The effect on the tax bases of the acquisitions is not substantial and amounts to a loss of approximately \$12.4 million out of a total of \$7.1 billion in assessed value for the five communities. This results in a total reduction of about \$.25 million in local tax revenues or 0.1 percent for the five communities. There will be no environmental

justice impacts as no minority or low-income populations are differentially affected by the project. In addition, no community facilities (e.g., schools, fire stations, town buildings, public parks, etc.) will be affected. Secondary growth impacts in New Hampshire may involve an increase in population of 35,000 people and an increase in employment opportunities amounting to 16,000 additional jobs by the Year 2020. These increases are in addition to what might be expected if the highway is not improved.

An estimated 17 sites with potential hazardous material involvement will be affected by the project. These sites will require further study, although none is expected to pose a substantial problem.

From an energy standpoint, the Preferred Alternative will create a more efficient flow of traffic resulting in future fuel conservation as compared to the No Build. The widening and other improvements will require a higher expenditure of energy for various maintenance activities like plowing, sanding, roadway surface and bridge repairs, as compared to current conditions.

E. Issues and Areas of Controversy

The primary issues throughout the DEIS process have been the consideration of instituting rail service in the region served by I-93 and the extent of secondary growth that may occur in addition to what might be expected if the highway were not improved. How impacts related to such growth should be mitigated has also been an issue.

Consideration of rail service was evaluated as part of the analysis of a broad range of alternatives that might address the project purpose and need. It was found that rail service, if implemented, would not sufficiently reduce demand along the highway to preclude the need to widen I-93 from Salem to Manchester. Relative to secondary growth, a panel of “experts” in the fields of land use, economics, environment, etc. was established and the Delphi approach was utilized to shed light on the issue of secondary growth.

At the local level, a number of issues of concern were also expressed. The amount of wetland impact and the best approach for providing compensatory mitigation was an issue throughout the project’s development. See **Figure 4.6-2** for the locations of potential mitigation sites that were considered. Representatives of the Town of Salem, also voiced concern relative to project impacts on floodplains and whether the project would exacerbate existing flooding problems in the town. In addition, potential impact on water quality in the major water bodies of Canobie Lake and Cobbetts Pond was an issue. The issue of noise impacts, including the need for sound walls, was a concern to a number of property owners immediately adjacent to the highway. Direct impacts to properties were also a concern throughout the corridor.

F. Other Governmental Actions

The NHDOT and FHWA are not aware of any additional federal actions or any state or local government actions within the project study area that would conflict with the proposed action.

G. Major Unresolved Issues

The one major unresolved issue is the question of whether mitigation should be provided to offset the effects of the secondary growth, and if so, to what degree and where.

Secondary impacts are difficult to predict with any certainty and are speculative by their nature. Under current NHDOT and FHWA practices, impacts associated with secondary growth that might result from highway improvement projects are typically not mitigated. Since development issues have traditionally been addressed by local municipalities, an initiative is proposed as part of this project to provide technical assistance in order to help the communities potentially affected by I-93 widening cope with future growth. The NHDOT along with other state agencies, participates in the GrowSmart New Hampshire program, which is a pilot program to provide technical assistance to communities for addressing future growth and development. This program is an offshoot of the Governor's Initiative on Sprawl and is in recognition of the widening of I-93 and its potential to spur growth. The program is proposed to be modified as appropriate, and expanded to provide technical assistance to the communities potentially affected by future growth in the region served by the I-93 widening.

Further, the proposed mitigation package to compensate for direct impacts to wetlands, floodplains, and other natural resources will result in providing and protecting open space, and in doing so provide some measure of relief relative to future development.

H. Federal and State Actions Required for the Implementation of Proposed Action

- An Individual Wetland Permit application has been submitted jointly to the US Army Corps of Engineers (USACOE) and New Hampshire Department of Environmental Services (NHDES) for their approval. This project's development has followed the USACOE's Highway Methodology, which is designed to integrate the Section 404 permitting process with the requirements of the National Environmental Policy Act (NEPA).

- Public Hearings by the USACOE and NHDES are required before a Section 404 permit under the Clean Water Act and a State Dredge and Fill permit can be issued for this project.
- A Section 401 Water Quality Certificate is required from NHDES and the US Environmental Protection Agency (USEPA) before the Section 404 permit can be issued.
- A Significant Alteration of Terrain or “Site Specific” Permit is required from NHDES.
- Pursuant to the National Pollution Discharge Elimination System (NPDES), a Notice of Intent (NOI) application to the USEPA for a General Permit for Construction Activity is required before construction can begin. A Stormwater Pollution Prevention Plan consistent with NHDOT Standard Specifications, which incorporate Best Management Practices (BMPs) for minimizing soil erosion and sediment movement, will be developed and submitted with this application.
- A variance from the NH Comprehensive Shoreland Protection Act may be required from NHDES for impacts on, or near, the banks of the two fourth-order or higher streams in the project area: Cohas Brook and Spickett River.
- An official determination by the National Marine Fisheries Service (NMFS) that this project will not affect Essential Fish Habitat (EFH) is required.
- A Record of Decision (ROD) issued by FHWA is required before this project can proceed to final design. The ROD is issued no sooner than 30 days after issuance of the Final EIS.